Draft

Environmental Assessment for Project Access during Probable Maximum Flood Event Bluestone Dam Safety Assurance Project

March 2007

Packs Branch Trail

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1.0 BACKGROUND

This Environmental Assessment (EA) has been developed by the U.S. Army Corps of Engineers (Corps), Huntington District, to identify and evaluate potential impacts of construction and operation of alternatives to access the dam necessary during an extreme flood event, such as the Probable Maximum Flood (PMF). This evaluation is part of the Bluestone Dam Safety Assurance (DSA) Project, which is currently under construction. The Bluestone Dam is located near Hinton, Summers County, West Virginia. This EA concisely documents environmental consideration and assists in determining whether significant impacts may be associated with the proposal (40 CFR 1508.9 (a)).

Construction of the DSA project began in 2001 and is scheduled for completion in 2015. During feasibility level planning, access to the dam during a PMF event was not considered in detail. During detailed design it became apparent, in part due to the time required to operate features necessary to prepare the dam for a PMF, that it is necessary to maintain ready access for the duration of such flood events.

2.0 PURPOSE AND NEED

The Corps is undertaking the modification of Bluestone Dam so that it will withstand the Probable Maximum Flood (PMF) event as authorized in the National Dam Safety Act (PL 92-367) of August 8, 1972. Feasibility level planning for this effort was completed during the spring of 1998. The *Final Environmental Impact Statement, Bluestone Lake, Dam Safety Assurance Project* (FEIS), was approved in May 1998. These evaluations recommended the need to modify Bluestone Dam to increase discharge capacity via the hydropower penstocks to withstand the PMF.

The PMF is the flood that may be expected from the most severe combination of critical meteorological and hydrologic conditions that are reasonably possible for a region. The Corps estimates of hypothetical flood characteristics (peak discharge, volume, and hydrograph shape) that are considered to be the most severe “reasonably possible” at a particular location, based on relatively comprehensive hydro-meteorological analysis of critical runoff producing precipitation (and snowmelt if pertinent) and hydrologic factors favorable for maximum flood runoff.

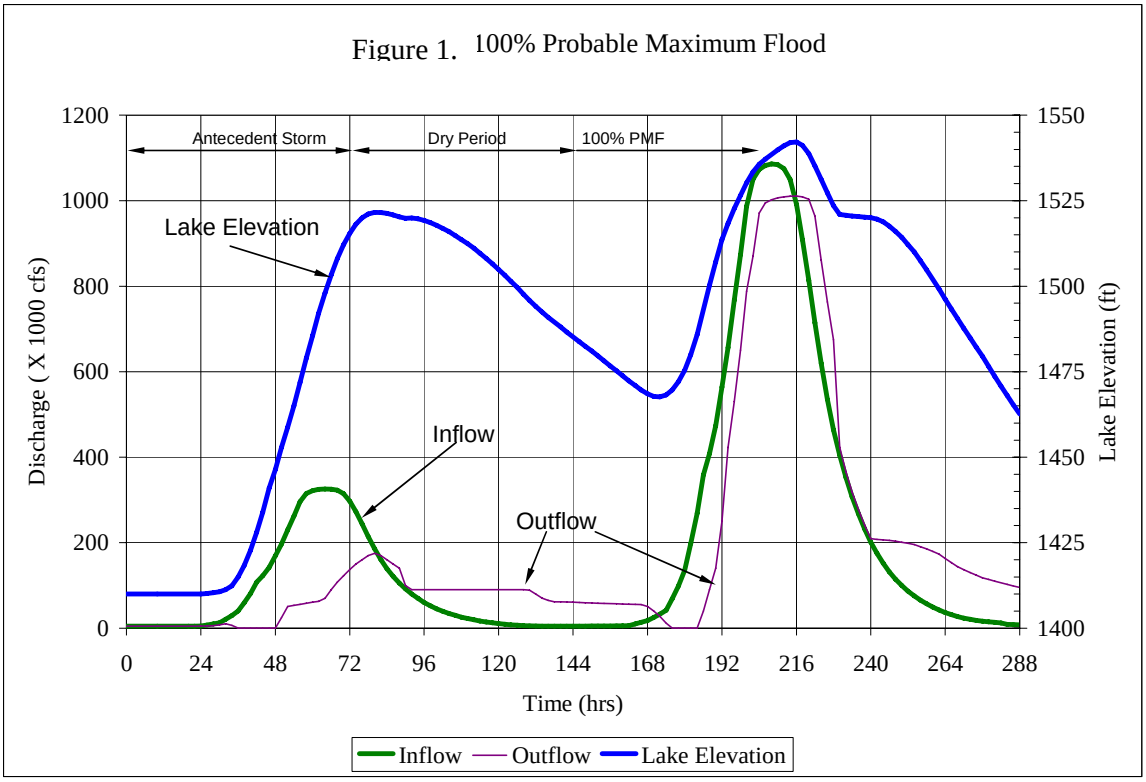

Figure 1 illustrates Bluestone Lake elevation, and "inflow" and "outflow" discharges, through a storm event period resulting in 100 percent PMF event – the worst case scenario with respect to flooding. Flooding under this scenario could be expected for prolonged periods from several days to more then a week (as illustrated by the antecedent and 100 percent PMF discharge peaks).

The complexities of the features that must be operated to prepare the dam for a PMF, such as operation of the State Route 20 gate closure, placement of aluminum bulkheads, etc., require several personnel beyond the staffing of the dam. Further, some mechanical equipment is required to operate these features. Therefore, it is necessary to provide a means to access the dam throughout the duration of the antecedent and PMF event to ensure adequate personnel can be made available as needed, to address any unforeseeable need for equipment or parts (such as in the event of a mechanical problem), and to ensure the safety of personnel called upon to operate the dam during such a monumental event.

The purpose for this EA is specifically to evaluate alternatives to provide access to the dam during a PMF or near-PMF magnitude event. However, since the action is undertaken as part of the Bluestone DSA project, the purpose and need for the DSA project must be considered as the overall purpose for the proposed action. A detailed discussion of the overall purpose and need for the Bluestone DSA project can be found in the aforementioned FEIS.

3.0 ALTERNATIVES CONSIDERED

During the evaluation documented herein, alternative access to the dam during a PMF event initially considered overland access (road) and air access (helicopter). The primary roads to the dam, State Route 3 and State Route 20, as well as secondary roads, were examined using the Federal Emergency Management Agency Flood Insurance Rate Maps (FIRM). The 100-year and 500-year floodplains from the FIRM were transposed to the USGS topographic maps surrounding (and including) the Bluestone Dam in areas where public roads would be inundated during such flood events. From this evaluation it was determined that access to the dam via public roads would be severed very early in the hydrographic period of a PMF event (such as a 100-year or greater flood elevation). Further, in such an infrequent event as a PMF it is not practicable to assume that roads would necessarily be passable, even if not for inundation by flood waters. The antecedent storm could result in culvert blockages, slips and sliding failures of road surfaces, landslides, and other impasses. Therefore, because of these uncertainties overland routes as a means to access the dam during the PMF event were dropped from detailed consideration. The range of alternatives was therefore limited to air access by helicopter. Two locations for helicopter access were considered in detail, along with the No Action alterative.

Dimensions for a helipad would be approximately 87-foot by 87-foot with a 30-foot safety zone, or about 147 foot by 147 foot area. In addition, an approach and departure zone clear of all obstacles is required in one direction from the helipad. Figure 2 illustrates required Visual Flight Rule approach and departure transitional surfaces.[1]

[1] US Department of Transportation Advisory Circular AC 150/5390-2B “Heliport Design”

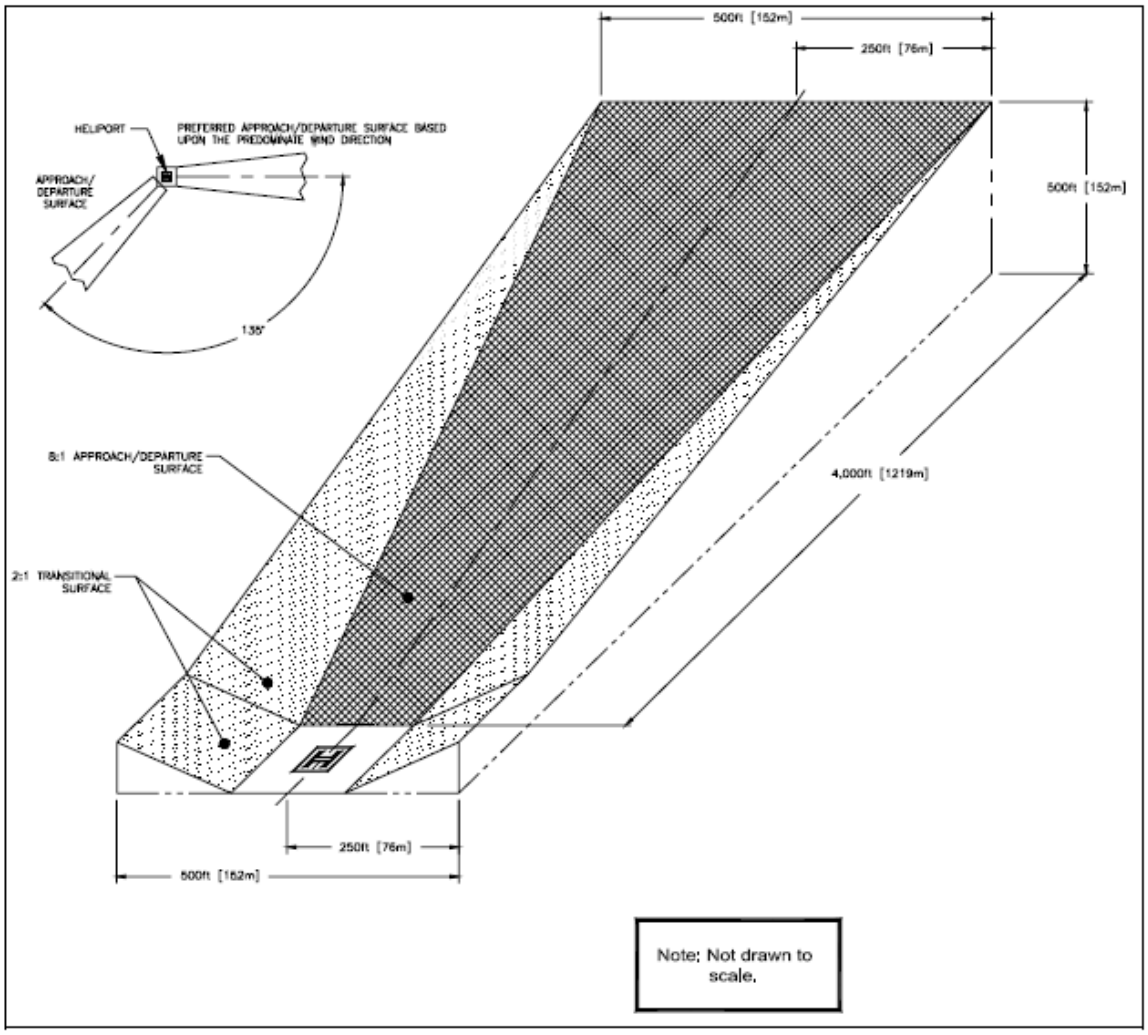

Figure 2-7. VFR Heliport Approach/ Departure and Transitional Surfaces: GENERAL AVIATION

3.1. East abutment berm extension

Under the east abutment berm extension alternative a helipad would be created by extending the training wall berm that is to be constructed as part of the DSA project. This berm, on the east abutment of the dam, would be extended about 35-40 feet from its present design 112-foot top width. This would require adding a concrete monolith to the new training wall to accomplish the fill. Construction materials required of this alternative are approximately 3000 cubic yards of concrete, 18,900 yards of granular backfill, and construction of a short access road or trail from the fill area to an adit door in the east abutment of the dam. Approximate venture level cost for this alternative is $1 million.

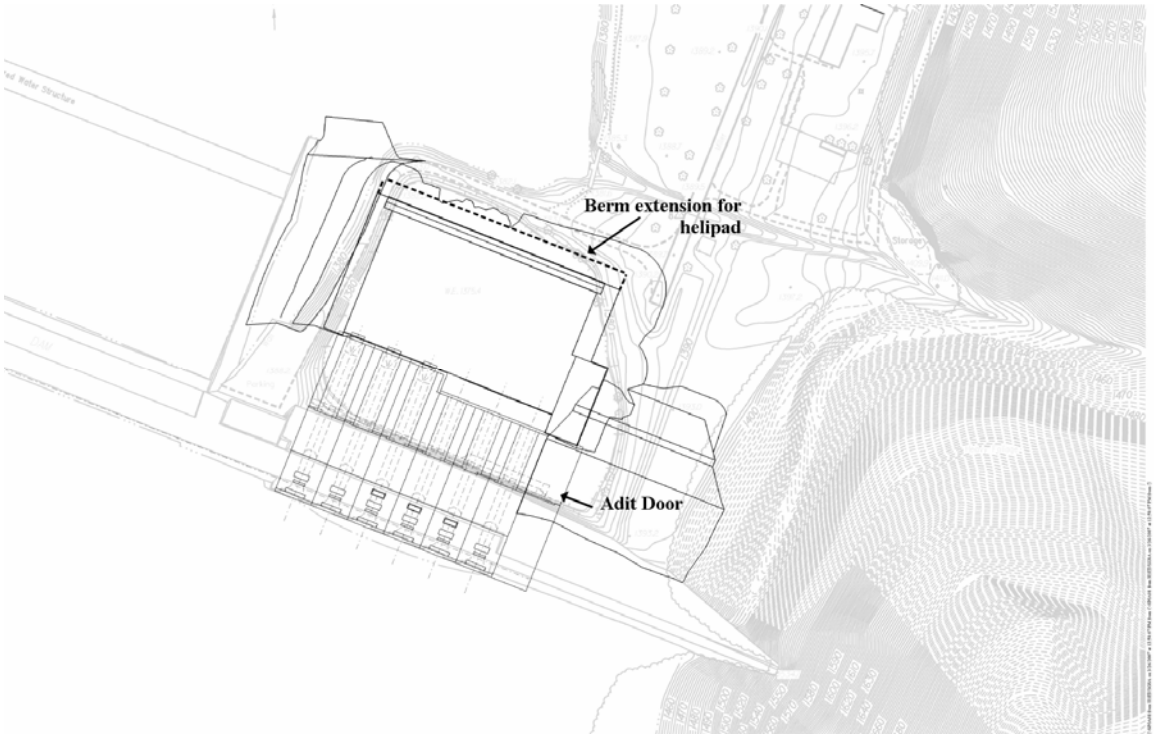

Figure 3. Alternative of extending the length of the planned east abutment berm to accommodate helipad construction.

3.2. Observatory area and Packs Branch Trail

During the period of original construction of the Bluestone Dam, a place for visitors to observe the dam being built was constructed. This area is located on the hillside just east of Bellepoint. The area is currently used only as a storage area for materials, such as gravel. An unimproved trail extends from the dam up-gradient along Packs Branch, an intermittent stream. The trail crosses the stream and then approximately follows the contour to the observatory area. The trail links to the adit in the east abutment of the dam and would provide the necessary access to the dam from the trail. (*See Figure 2*).

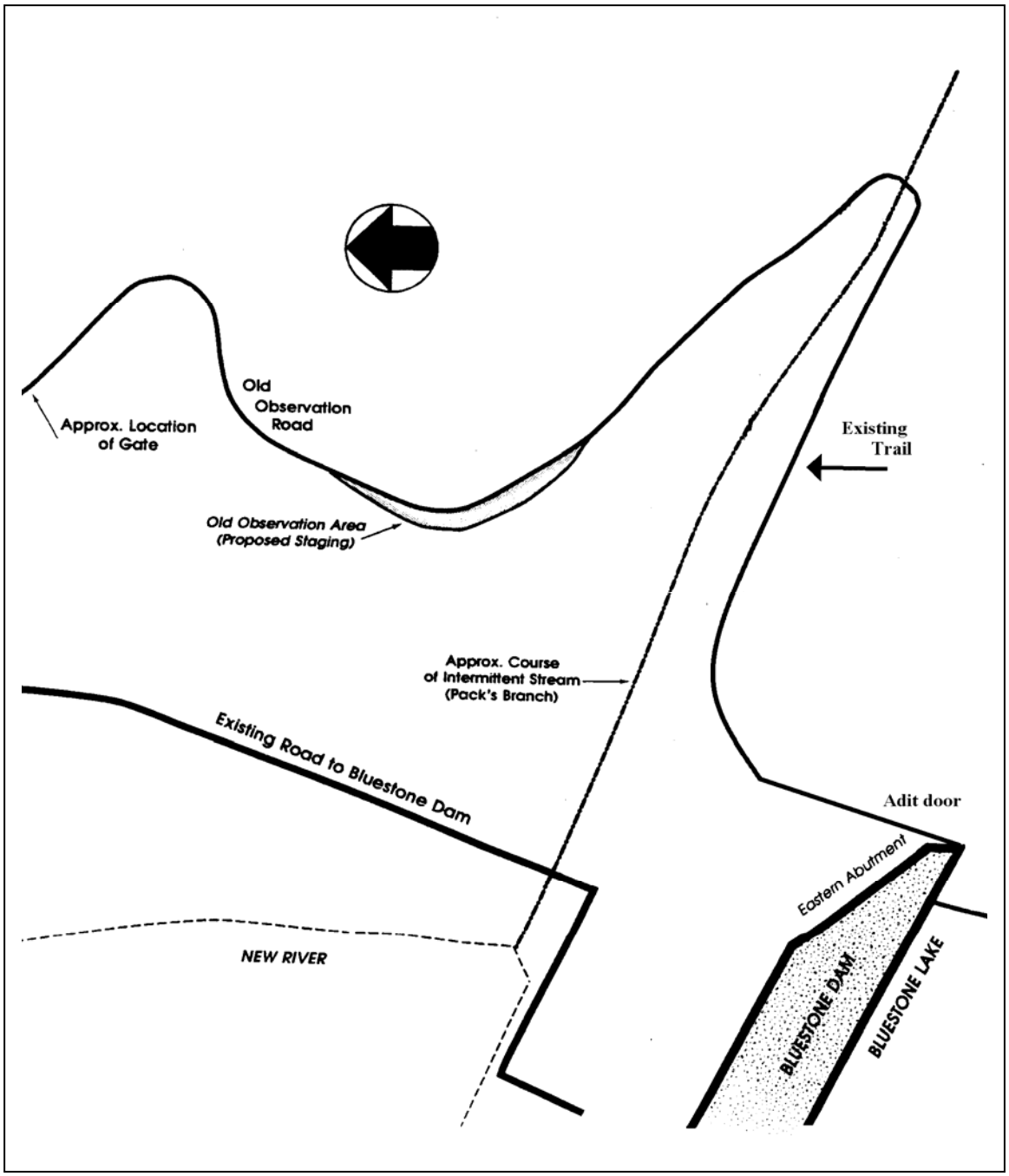

Figure 4. Proposed alternative access route that would use the "Old Observatory Area" and the "Existing Trail".

The Observatory Area is of sufficient size to allow for helipad construction. The existing trail would require only minor improvement for the purpose of providing emergency access by off-road vehicles. Some clearing down slope of the Observatory Area would be necessary to create the appropriate prescribed[2] approach/departure flight path. The

[2] US Department of Transportation Advisory Circular AC 150/5390-2B "Heliport Design"

trail would require only minor improvement, which would entail establishing effective drainage such as ditching and construction of water bars. A culvert would be required at the stream crossing. Once the necessary improvements to the trail would be completed, the trail surface would be seeded and mulched to establish a permanent vegetative cover. Maintenance would be limited to periodic mowing and maintenance of drainage control features.

3.3. No Action

Under the No action alternative no changes to the current design of the Bluestone DSA project would be made to provide for access during a PMF event.

4.0 EVALUATION OF THE ALTERNATIVES

This section provides a concise description of potential impacts and significance on the human environment from the alternatives considered. This assessment provides the basis to supplement the FEIS for the Dam Safety Assurance project or execute a Finding of No Significant Impact (see Addendum).

4.1. No Action

Under the no action alternative, no provision would be made to provide access the dam during a major flood event such as the PMF. Impacts from the no action alternative could be very significant if additional personnel or equipment is required for operation of features designed to ensure that the dam can safely pass the PMF. The impacts from dam failure are discussed in detail in the FEIS.

4.2. East abutment berm extension

No significant impacts would be expected from construction of this alternative.

Construction of a helipad on the east abutment berm would result in an additional land requirement for the fill of about 0.5 acres. However, this area was disturbed during construction of the dam. Extending the berm would approximately require the irretrievable commitment of 3,000 cubic yards of concrete, and 18,900 yards of granular backfill.

Visual effects from the extended berm would be very similar to the planned berm which was fully evaluated and documented in FEIS.

Construction of the berm extension would increase traffic through the Bellepoint neighborhood by about 2200 truck trips. In previous evaluation of traffic impacts on this community[3], mitigative measures were established to reduce the noise levels

[3] Final Environmental Assessment for Alternative Construction Access Bluestone Dam Safety Assurance Project, April 2005.

produced by truck traffic to an acceptable level and to assure safe traffic conditions. Because of these mitigative measures, and due to the relatively short increase in the overall duration and intensity of the construction traffic, impacts on noise and traffic safety would be expected to be minor.

4.3. Observatory area and Packs Brach Trail

During development of the feasibility level plan for the DSA Project, construction access to the dam[4] was evaluated using essentially the same route as considered in this document as the Observatory area and Packs Branch trail alternative. Impacts from this alternative would be much less in material and significance as those impacts considered in the FEIS for ingress access for DSA construction, since this trail and helipad would only be used in an extreme and very infrequent flood event.

Impacts to water quality, including sedimentation would be expected to be minor. Under this alternative, the existing trail would be used without modification except for minor grading to facilitate proper drainage and the installation of a culvert for stream crossing. The culvert would be installed approximately 2500 upstream from the mouth of Packs Branch at the trail's existing stream crossing. Installation of a 20 linear foot section of culvert into the intermittent stream for a linear transportation crossing would meet the criteria of Nationwide Permit No. 14, pursuant to Section 404 of the Clean Water Act. Further, because this culvert installation would require less than 200 linear feet disturbance, impact less than 0.10-acre of waters of the United States, and is not a special aquatic site, it would meet the criteria for the general water quality certification for NWP No. 14. Construction activities on the trail segment would be limited to minor grading, establishing proper drainage, and seeding and mulching using recognized best management practices for trail construction[5].

There would be no impacts to threatened or endangered species resulting from this alternative. A biological evaluation of the land proximate to the east abutment of the dam was prepared in October 1997 to assist in evaluation of the then proposed DSA project construction access along Packs Branch[6]. During the survey, one federally

[4] FEIS, Page 5-19 "A one-way construction access road will be built through forested areas adjacent to the dam. During road construction, destruction of identified species should be avoided. The West Virginia state listed sensitive species black-bellied salamander (*Desmognathus quadramaculatus*), has been identified within Packs Branch. Terrestrial sites near the access road turn-around have been identified as key habitat for the other sensitive species (see Appendix IX). Civil design restrictions require use of this area to begin the descent to the floodplain staging area. However, avoidance of many of these habitats outside the stream itself has been determined to be feasible. Coordinates of the subject rock shelters are included in Appendix IX to ensure avoidance during final design."

[5] West Virginia Silvicultural Best Management Practices for Controlling Soil Erosion and Sedimentation from Logging Operations, WVDOF-TR-05-3(11/05)

[6] *Biological Evaluation of Tract of Land Proximate to the Eastern Abutment of the Bluestone Dam*, October 1997. US Army Corps of Engineers, Huntington District.

listed species of concern, butternut or white walnut (*Juglans cinerea*) was located. Exact locations of the specimens were recorded. Although no clearing would be required in the proximity of these trees, prior to modification of the trail, the trees would be flagged to ensure they are not damaged.

There would also be no impacts to the State listed species of importance. The State listed sensitive species, the black-bellied salamander (*Desmognathus quadramaculatus*), was found in Packs Branch. From the point where the trail crosses Packs Branch downstream to the mouth, 18 individuals were observed. In the area 100 meters upstream of the stream crossing 7 such animals were observed. The direct placement of a 20-foot culvert in the channel of Packs Branch would result in loss of some habitat for this species. The culvert would be embedded about 1 foot below grade to provide for movement. Because the black-bellied salamander is common in Packs Branch, impacts from placement of the culvert would be minor. Therefore, no impact to these species would occur.

The modification of the trail segment would have very minor impact to terrestrial features, and therefore overall impacts to terrestrial habitats would be very minor. Clearing of about one acre at the Observatory Area would be required to create an appropriate flight path. In addition, on the east side of the Observatory Area some clearing and minor re-grading would be necessary to provide the required helipad space. This area is vegetated with species typical of late successional growth forest. The butternut is not in this area. No impacts to federally listed threatened or endangered species would occur.

The clearing for flight path at the Observatory Area would be visible from some points in the area. This area was kept clear during construction of the dam. Although the access road is closed to vehicular traffic, pedestrians could visit the helipad area and view the dam. Under the proposed plan a 6-inch layer of gravel would be placed over the approximate 87-foot by 87-foot landing area. Some minor grading would be required to prepare the landing area.

The remaining features from the Overlook, guardrail and steps, would not be directly impacted. No adverse effect of historic resources would occur from implementation of this alternative. The Cultural Resources Memorandum of Agreement is included as Appendix C, for reference.

Photograph 1. Old Observatory Area.

Photograph 2. Steps at Old Observatory Area.

5.0 CONCLUSION

The Corps of Engineers, Huntington District has undertaken the Bluestone Dam Safety Assurance Project to ensure the continued safe operation of Bluestone Dam for the foreseeable future. The Corps has determined that helicopter access to the Bluestone Dam during a major flood event such as the Probable Maximum Flood is appropriate and necessary to meet the purposes of the Dam Safety Assurance project as defined in the FEIS. Those alternatives considered in this document for access are: 1) east abutment berm extension and 2) Observatory Area and Packs Branch Trail, and 3) the No Action alternative. The no action alternative has a potential for significant impacts because lack of access to the dam during a PMF event could jeopardize the Corps ability to operate features necessary to ensure the dam can withstand the flood. No significant impacts would be expected from implementation of either construction alternative. However, because the cost of using the Observatory Area and Packs Branch Trail is significantly less it is therefore the Corps preferred plan.

APPENDIX A

Notice of Availability

The U.S. Army Corps of Engineers, Huntington District, by this Notice of Availability (NOA), advises the public that the Draft Environmental Assessment (DEA) for Project Access during Probable Maximum Flood Event, Bluestone Dam Safety Assurance Project, is complete and available for review. The project is located near Hinton, West Virginia. A Finding of No Significant Impact (FONSI) is anticipated for the proposed project. A FONSI is included with the DEA for public review.

In compliance with the National Environmental Policy Act (NEPA) and 40 CFR 1501.4, the DEA and draft FONSI must be available to the public in the affected area for thirty (30) days for review and comment. Final determination regarding the need for additional NEPA documentation will be made after the public review period, which begins on or about April 18, 2007, and ends on or about May 18, 2007. Copies of the documents may be viewed at the following locations:

Bluestone Lake Project Office
701 Miller Avenue
Hinton, West Virginia 25951

Summers County Public Library
201 Temple Street
Hinton, West Virginia 25951

Corps of Engineers, Huntington District
502 Eighth Street
Huntington, West Virginia 25701

http://www.lrh.usace.army.mil/

Copies of the DEA and draft FONSI may be obtained by contacting the Huntington District Office of the Corps of Engineers at 304-399-5873. Comments pertaining to the documents should be directed to the following address, by May 18, 2007:

Mr. Peter Dodgion
Chief, Environmental Analysis Section
Planning Branch
Huntington District Corps of Engineers
502 Eighth Street
Huntington, West Virginia 25701-2070
or;
Email: Peter.K.Dodgion@lrh01.usace.army.mil

APPENDIX B
Draft Environmental Assessment Distribution List

Honorable Robert C. Byrd
United States Senator
Attn: Pat Braun
311 Senate Hart Office Building
Washington, DC 20510

Honorable John D. Rockefeller, IV
United States Senator
531 Senate Hart Office Building
Washington, DC 20510

Honorable Nick J. Rahall
House of Representatives
2307 Rayburn House Office Building
Washington, DC 20515

Honorable Joe Manchin III
Governor, State of West Virginia
Chief of Staff, State Capitol
1900 Kanawha Boulevard
Charleston, West Virginia 25305

Mr. Tom Chapman
U.S. Fish and Wildlife Service
Post Office Box 1278
Elkins, West Virginia 26241

Mr. John Forren
U.S. Environmental Protection Agency
Region III, 3ES30
1650 Arch Street
Philadelphia, Pennsylvania 19103-2029

Ms. Susan M. Pierce
Division of Culture and History
The Cultural Center
1900 Kanawha Boulevard East
Charleston, West Virginia 25305-0300

Stephen L. Carpenter, Engineer
Office of Air Quality
West Virginia Division of Environmental Protection
1558 Washington Street East
Charleston, West Virginia 25311

Mr. Roger Anderson
West Virginia Division of Natural Resources
Post Office Box 67
Elkins, West Virginia 26241

Mr. Lyle Bennett
Office of Water Resources
West Virginia Division of Environmental Protection
1201 Greenbrier Street
Charleston, West Virginia 25311-1088

Honorable Cleo Matthews
Mayor, City of Hinton
Post Office Box 477
Hinton, West Virginia 25951

National Park Service
104 Main Street
Post Office Box 246
Glen Jean, West Virginia 25846-0246

Doug Tolbert
New River Parkway Authority
95 Union Street
Hinton, West Virginia 25951

APPENDIX C

MEMORANDUM OF AGREEMENT
AMONG
THE U. S. ARMY CORPS OF ENGINEERS, HUNTINGTON DISTRICT,
THE WEST VIRGINIA STATE HISTORIC PRESERVATION OFFICER
REGARDING
THE BLUESTONE LAKE DAM SAFETY ASSURANCE AND DRIFT AND DEBRIS PROJECTS, SUMMERS COUNTY, WEST VIRGINIA

WHEREAS, the U. S. Army Corps of Engineers, Huntington District (Huntington District), proposes to modify the Bluestone Dam, located in Summers County, West Virginia; and,

WHEREAS, the Huntington District has determined that the modification of Bluestone Dam to comply with modern safety standards and to allow drift and debris to pass efficiently through the dam, will have an effect upon a property eligible for inclusion in the National Register of Historic Places (National Register) and has consulted with the West Virginia State Historic Preservation Officer (WVSHPO) pursuant to the regulations 36 CFR Part 800 implementing Section 106 of the National Historic Preservation Act of 1966, as amended (16 USC 470 f);

NOW, THEREFORE, the Huntington District and the WVSHPO agree that the undertakings shall be implemented in accordance with the following stipulations in order to take into account the effects of the undertakings on historic properties.

Stipulations

The Huntington District shall ensure that the following measures are carried out:

1. Documentation of Bluestone Dam.

The Huntington District will develop a detail history of Bluestone Dam covering its planning, engineering, construction and its significance in the themes of law, politics, government, economics and conservation. The documentation will consist of a narrative report and include historic photographs, copies of original blueprints and designs, and photographs recording the structure's current internal and external appearance. The history will be reviewed and accepted by the WVSHPO.

2. Distribution of Documentation

Final copies of the documentation report will be distributed to the WVSHPO, Summers County Historic Landmarks Commission and Summers County Historical Society.

3. Public Outreach

Efforts will be made to inform the public about the significance of Bluestone Dam by revising the Corps web site to include historical information and historic photos of the

dam, development of a brochure on the history of Bluestone Dam for distribution to visitors and school groups, and upgrade and improvement of displays at the Interpretive Center once these projects are complete.

4. Design

Incorporate into the Interpretative Center an area where visitors can view Bluestone Lake once the projects are completed.

5. Discoveries Without Prior Planning

If the Huntington District discovers historic properties or archeological sites without prior planning or unanticipated effects on historic properties or archeological sites are found after the Huntington District has completed the Section 106 process, the Huntington District will make reasonable efforts to avoid, minimize or mitigate adverse effects to such properties or sites pursuant to 36 CFR 800.13(b). If no construction has commenced, the Huntington District will consult with WVSHPO to resolve adverse effects pursuant to 36 CFR 800.6. If construction has commenced, the Huntington District will determine actions to take to resolve adverse effects, and notify WVSHPO within 48 hours of discovery. The notification shall describe the actions proposed by the Huntington District to resolve the adverse effects. WVSHPO shall respond within 48 hours of the notification and the Huntington District shall take into account his/her recommendations and carry out appropriate actions. The Huntington District will provide WVSHPO a report of the actions when they are completed pursuant to 36 CFR 800.13(b)3.

6. Summary Reports and Consultation

The signatories to this Agreement shall consult at least twice to review implementation of the terms of this Agreement. The review shall be three years and six years after the execution of this Memorandum of Agreement. . Prior to each review, a report shall be provided by the Huntington District to the WVSHPO detailing how obligations pursuant to this Agreement have been carried out. If revisions to this Agreement are needed, the signatories to this Agreement shall consult to make such revisions in a manner consistent with 36 CFR Part 800.

7. Dispute Resolutions

Should the WVSHPO or the Huntington District fail to agree on the terms of this agreement the Huntington District shall, pursuant to 36 CFR 800.6(b)(v), request the Advisory Council on Historic Preservation (Council) to join the consultation and provide the Council with the documentation set forth in 36 CFR 800.11(g). If the Council decides to join the consultation, the Huntington District shall proceed in accordance with 36 CFR 800.6(b)2. If the Council decides not to join consultation, the Council will notify the Huntington District and proceed to comment in accordance with 36 CFR 800.7(c).

Execution of this Memorandum of Agreement by the Huntington District and the WVSHPO, its submission to the Council, and implementation of its terms, is evidence that the Huntington District has afforded the Council an opportunity to comment on the Bluestone Dam Project and its effects on historic properties, and that the Huntington District has taken into account the effects of the project on historic properties.

IN WITNESS WHEREOF, the parties hereto have caused their respective names to be signed by their duly authorized officers:

By: _____ Date: _____
John D. Rivenburgh
Colonel, Corps of Engineers
Commanding

By: _____ Date: _____
State Historic Preservation Officer
West Virginia

ADDENDUM

Draft Finding of No Significant Impact

-DRAFT-

Finding of No Significant Impact
Project Access during Probable Maximum Flood
Bluestone Dam Safety Assurance Project
Hinton, West Virginia

1. I have conducted an environmental assessment in the overall public interest concerning implementation of the Project Access during Probable Maximum Flood Event, Bluestone Dam Safety Assurance Project. The purpose of this project is to provide access to the Bluestone Dam during a major flood event such as the Probable Maximum Flood to ensure safe and effective operation of the dam. The Dam Safety Assurance project is authorized in the National Dam Safety Act (PL 92-367) of August 1972.

2. The possible consequences of the project have been studied for biological, cultural and social effects. Another factor bearing on my assessment was the capability of the project to meet the public needs for which it was proposed. The following references that assessment:

a. Biological Considerations. The Huntington District has taken reasonable measures to assemble and present the known or foreseeable environmental impacts of the project in the environmental assessment. These impacts involve biological and human resources. Impacts to biological resources would be minor as a result of the proposed action. All adverse effects of project implementation are insignificant or may be avoided through management techniques.

b. Social Well-Being Considerations. No significant economic or social well-being impacts are foreseen as a result of the proposed action. No archeological resources are recorded in the project area and the selected project alternative would not impact significant unrecorded archeological sites because it involves use of existing roadways.

c. Coordination with Resources Agencies. Pursuant to the Fish and Wildlife Coordination Act (FWCA) of 1958, coordination with the U.S. Fish and Wildlife Service and the West Virginia Department of Natural Resources has been maintained throughout the study. No effects on fish and wildlife would occur as a result of the proposed action. Also, in accordance with the Endangered Species Act, as amended, the recommended plan would not impact listed species.

d. Other Pertinent Compliance. No prime or unique farmland under the Farmland Protection Policy Act will be involved. The proposed action is also in compliance with the National Historic Preservation Act, (Section 10632 CFR 300), Executive Order (EO) 11988 (Floodplain Management) and EO 11990 (Protection of Wetlands).

e. Other Public Interest Considerations. There has been no significant opposition to the proposed action by State or local Governments, or organized environmental groups. Comments received during the public review period have been included in the Final Environmental Assessment. There are no unresolved issues regarding the implementation of the project.

f. Section 176(c) Clean Air Act. The proposed action has been analyzed for conformity applicability pursuant to regulations implementing Section 176(c) of the Clean Air Act. It has been determined that the proposed action will not exceed *deminimis* levels or direct emissions of a criteria pollutant or its precursors and is exempted by 40 CFR Part 93.153. Any later indirect emissions are generally not within the Districts' continuing program responsibility and generally cannot be practicably controlled by the District. For these reasons a conformity determination is not required for this action.

5. I find the Project Access during Probable Maximum Flood Event Bluestone Dam Safety Assurance Project has been planned in accordance with current authorization as described in the Environmental Assessment. The project is consistent with National policy, statutes, and administrative directives. This determination is based on thorough analysis and evaluation of the project and alternative courses of action. In conclusion, I find the proposed action will have no significant adverse effect on the quality of the human and/or natural environment.

_____ _____

DATE

DANA R. HURST
Colonel, Corps of Engineers
Commanding